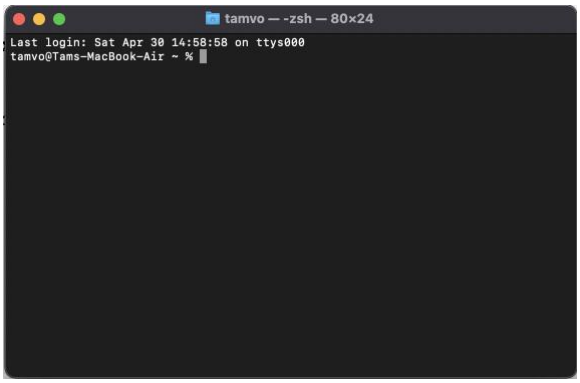
Student Name: Thanh Tam Vo
Student ID: 103487596

1. Explain the terminal instruction **cd**, **ls**, and **pwd.**

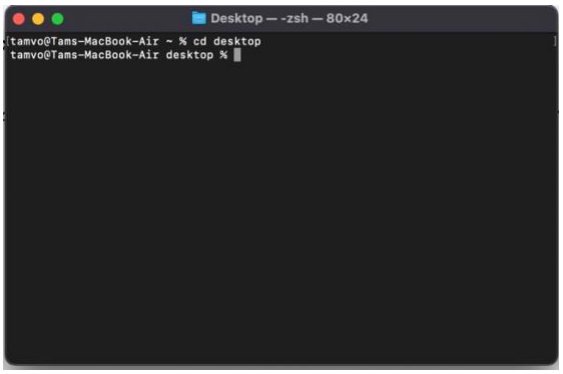
   - *"cd"* is a terminal command line to change the directory or the folder.

   This is the terminal at the beginning



Screenshot from my Mac on May 20th 2022

This is the terminal after changing the directory by the *"cd"* command line



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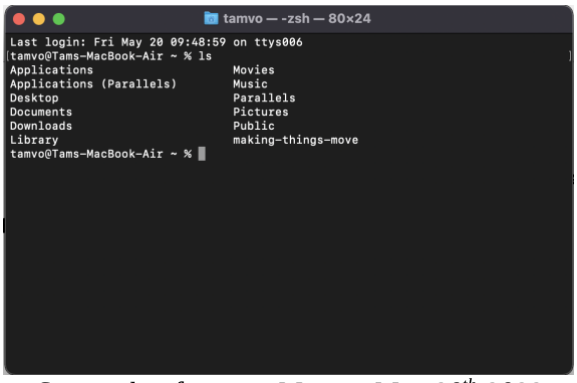
- *"ls"* is a terminal command line to list all the folder in the terminal's shell

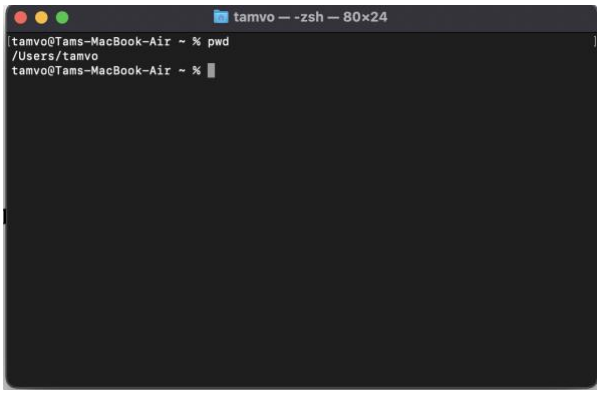
This is the terminal after performing *"ls"* command line



Screenshot from my Mac on May 20th 2022

- *"pwd"* stands for "present working directory". This command line will print the current working folder to the terminal

This is the terminal after performing *"pwd"* command line



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2. Consider the following kinds of information, suggest the most appropriate data type to present.

Information	Data Type
A person's name	String
A person's age in year	Integer
A phone number	String
A temperature in Celsius	Float
The average age of a group of people	Float
Whether the person has eaten lunch	Boolean

3. Aside from the examples already given, come up with an example of information that could be stored as:

Data Type	Information
String	My university's name
Integer	The population of the world
Float	Someone's grade average point
Boolean	Whether I have finished my assignment

4. Fill out the following table, evaluating the value of each expression and identifying the data type the value is most likely to be.

Expression	Given	Value	Data Type
`5`		5	Integer
`TRUE`		TRUE	Boolean
`a`	`a = 2.5`	2.5	Float
`1 + 2 * 3`		7	Integer
`a and FALSE`	`a = TRUE`	FALSE	Boolean
`a or FALSE`	`a = TRUE`	TRUE	Boolean
`a + b`	`a = 1 and b = 2`	3	Integer
`2 * a`	`a = 3`	6	Integer
`a * 2 + b`	`a = 1.5 and b = 2`	5	Integer
`a + 2 * b`	`a = 1.5 and b = 2`	5.5	Float
`(a + b) * c`	`a = 1, b = 1, and c = 5`	10	Integer
`"Fred" + " Smith"`		"Fred Smith"	String
`a + " Smith"`	`a = "Wilma"`	"Wilma Smith"	String

5. Explain the difference between **declaring** and **initialising** a variable.

   Declaring a variable is giving it a name, some space in memory depending on its data type. However, we are not going to assign its value.

   Initializing a variable is giving it an appropriate value based on the data type of the variable.

6. Explain the term **parameter**.

   Parameter can be considered as a variable, which is passed into a function for computational purposes.
   A function can have multiple parameters.

This is an example of taking a name as a parameter and print “Hello” + name to the terminal.
(The programming language is python)

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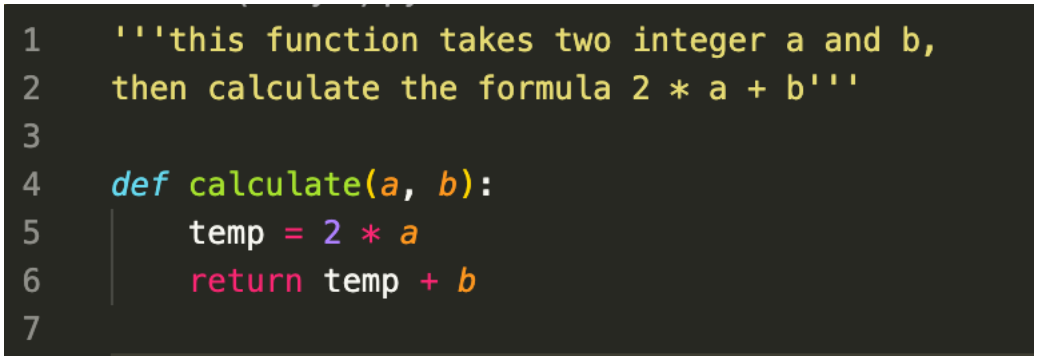
7. Using an example, describe the term **scope**

A scope is a region where a declared (or initialized) variable can be used but cannot be a accessed outside that region

For example:



Screenshot from my Mac on May 20th 2022

As the example above, the variable “*temp*” can only be accessed inside the function called “*calculate*”

8. In any procedural language you like, write a function called Average, which accept an array of integers and return the average of those integers

```
1  def calculating_the_average(array):
2      result = 0
3      for number in array:
4          result += number
5
6      result = result / len(array)
7      return result
8
```

Screenshot from my Mac on May 20th 2022

9. In the same language, write the code you would need to call that function and print out the result

```
1  def calculating_the_average(array):
2      result = 0
3      for number in array:
4          result += number
5
6      result = result / len(array)
7      return result
8
9
10 def main():
11     array = [1,2,3,4,5,3,4,52]
12     result = calculating_the_average(array=array)
13     print(result)
14
15 main()
```

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10. To the code from 6, add code to print “Double digits” if the average above 10. Otherwise, print the message “Single digits”

```
def calculating_the_average(array):
    result = 0
    for number in array:
        result += number

    result = result / len(array)
    return result


def main():
    array = [1,2,3,4,5,3,4,52]
    result = calculating_the_average(array=array)
    print(result)

    if result > 10:
        print("Double digits")
    else:
        print("Single digits")
main()
```

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